Incidence, diagnostic methods and evolution of left-ventricular (LV) thrombus in patients with anterior myocardial infarction (ant-MI) and low LV ejection fraction: a prospective multicenter study

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Aims

Question n°1: What is the incidence of LV Thrombus after ant-MI complicated with LV dysfunction in spite of a modern managementincluding angioplasty and dual antiplatelet therapy

Question n°2: Is Echocardiography (TTE) a goog exam to detect these LV Thrombi
Or should all these patients undergo a cardiac magnetic resonance imaging
with delayed enhancement (CMR-DE) ?

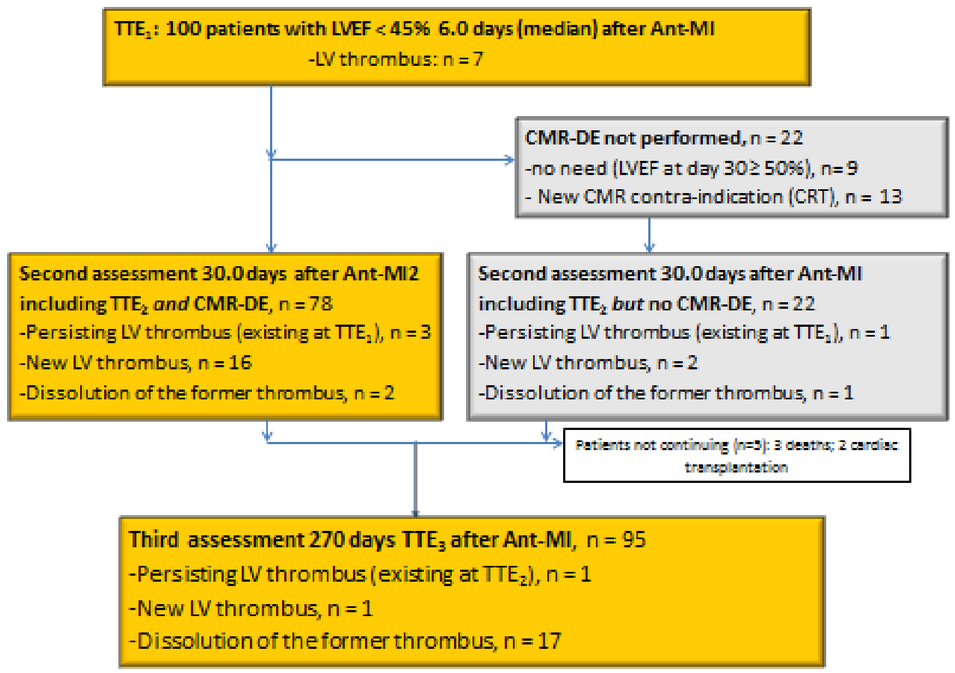
Methods

(1) In 7 centers Inclusion of 100 consecutive patients with LVEF < 45%
within 7 days after ant-MI

(2) **LV thrombus incidence and evolution**: at least 3 mandatory TTE with clinical evaluation: at inclusion, at day 30 and 6 to 12 months after ant-MI

(3) **Comparison TTE and CMR-D**: the two exams were performed the same day at day 30 and blindly evaluated

Results

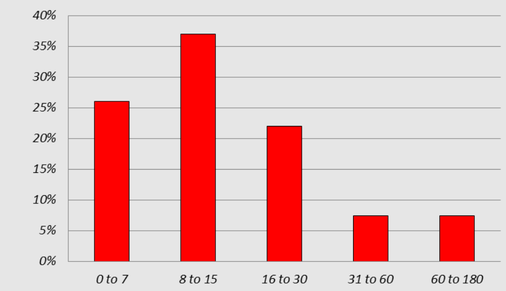


Results

Patients

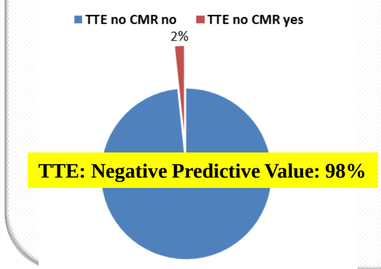
	Thrombus (n = 26)	No thrombus (n = 74)	P value
Age, years, mean±SD	57.4 ± 12.7	59.7 ± 11.9	0.40
Male gender	20 (76.1)	52 (70.3)	0.78
Current smoker	12 (46.2)	31 (41.9)	0.71
Diabetes	3 (11.5)	17 (23.0)	0.21
Known hypertension	7 (26.9)	26 (35.1)	0.44
Hypercholesterolemia	5 (16.9)	3 (44.6)	0.12
BMI, kg/m², mean±SD	26.7 ± 5.1	26.5 ± 5.0	0.90
Preexisting atrial fibrillation	1 (3.8)	2 (2.7)	0.77
Coronary angiography	25 (96.2)	74 (100)	0.10
Primary PCI	20 (77.0)	68 (92.0)	0.04
LAD PCI	18 (69.2)	66 (89.2)	0.02
Left main PCI	1 (3.8)	4 (5.5)	0.75

Detection of LV thrombus by days after Ant-MI



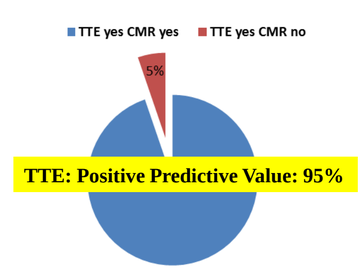
Post MI first discovery, days, mean±SD	12 days; IQR25-75: 7.2-28.7
Thrombus maximal area, cm², mean±SD	2.1 ± 1.7
Mobile thrombi, n(%)	4 (15)
Protruding thrombi, n(%)	17 (65)
Thrombus resolution, n (%)	24 (92.3)
duration, days, mean±SD	12 days; IQR25-75: 11.0-60.2
Thromboembolic event, n(%)	1 (3.8)

Cardiac Magnetic Resonance Imaging with Delayed Enhancement (CMR-DE) and Transthoracic Echocardiography (TTE) comparison in LV Thrombi Detection



TTE: Negative Predictive Value: 98%

	CMR-DE	
TTE	No Thrombus	Thrombus
No Thrombus	58	1
Thrombus	1	18



TTE: Positive Predictive Value: 95%

Conclusion

1-LV Thrombus Still Occur in 26%of Patients after Major Ant-MI
2-Contrarily to Routine TTE, Focused TTE has a high Accuracy for LV Thrombus Detection

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Question n°1 :What is **Today** the incidence of Left Ventricular (LV) thrombus after anterior-MI complicated with LV systolic dysfunction ?

- Before reperfusion techniques generalization for acute MI :
  - 25-40% of patients after Ant-MI
- Nowadays:
  - 7-10% of patients after unselected Ant-MI

But what is the incidence of LV thrombus after Ant MI complicated with LV systolic dysfunction inspite of a modern treatment ?:

-angioplasty

-dual antiplatelet therapy

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